

ABSTRACT

PT Trisula Textile Industries TBK is a private company engaged in the textile industry especially for uniforms and fashion. Briefly the fabric production process is divided into six stages, namely texture, twisting, sizing, weaving, dyeing finishing, and final inspection. From the six stages, it is known that the weaving production section has the longest breakdown time, more precisely is the weaving machine Ishikawa 2001. After being traced it turned out that the cause of Ishikawa 2001 weaving machine's breakdown time was spare parts which were often not available when needed. The cause of this lack of spare parts contributed 18% for the breakdown time experienced by the weaving production machines. The purpose of this research is to reduce total inventory costs by making savings on shortages component cost caused by waiting time for spare parts.

To focus the research based on the critical level of spare parts, critically analysis system is carried out After the critical spare parts have been determined, the next step is to test the distribution pattern on the existing spare parts demand data using IBM SPSS Statistics 23 software. This research also calculated the estimated possibility amount of critical spare parts needs for the next one year with Markov chain using Maple 2015 software. Furthermore, the results of the Markov chain will be taken into consideration in research to determine the inventory policies carried out using an uncertain risk-controlled inventory method with Excel.

The results of this research provides savings at total inventory costs for 5% when compared to the company's actual conditions. This percentage of savings is obtained from an increase for 11% from the purchasing cost, an increase for 22% from the holding cost, and a saving for 22% from the shortage cost.

Keywords: Inventory Policy, Spare Parts, Critically Analysis System, Markov Chain, Uncertain Risk-Controlled Inventory Method